

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 17-24 are presently active; although claims 1-29 are currently pending in the application, claims 1-16 and 25-29 are withdrawn from consideration. Claims 17-24 have been amended by way of the present amendment.

Applicants appreciate the Examiner's indication that claim 21 would be allowable if rewritten in independent form and to overcome the rejection under 35 U.S.C. 112, second paragraph. The claim has been so rewritten.

In the outstanding Office Action, claims 19-22 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 17, 18, and 23 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hirofumi et al. (Japanese Publication No. 06-315961). Claims 17, 18, and 24 were rejected under 35 U.S.C. § 102(b) as being anticipated by Toshio et al. (Japanese Publication No. 08-234005). Claims 17-20 and 22-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kanematsu et al.

As discussed above, claims 19-22 were rejected under 35 U.S.C. § 112, second paragraph. Regarding claim 19, in response to the assertion that the feature of the "extension surface" is indefinite, Applicants have amended the claim to recite an "adjacent surface." Support for this amendment can be found, inter alia, in figures 6 and 8-11, as well as from page 14, line 11 through page 15, line 8, and from page 18, line 7 through page 19, line 13 of the originally filed specification. Regarding claims 20 and 21, in response to the assertions that the feature of the "contour located along an edge of the transfer surface" is indefinite, Applicants have amended the claims to recite a "contour disposed apart from an edge of the transfer surface" and a "contour disposed apart from edges of both the transfer surface and

the second transfer surface,” respectively. Support for these amendments can also be found, inter alia, in figures 6 and 8 – 11, as well as from page 14, line 11 through page 15, line 8, and from page 18, line 7 through page 19, line 13 of the originally filed specification. Regarding claim 22, in response to the assertion that the feature of the “thin portion” is indefinite, Applicants have amended the claim to recite a “portion having a thickness less than a maximum thickness of the plastic molding.” Support for this amendment can be found, inter alia, in figures 6, 8, and 10, as well as from page 18, line 7 through page 19, line 13 of the originally filed specification.

The Office Action also asserts that claim 21 is indefinite because it “fails to define the spatial relationship between the first and second transfer surfaces.” Applicants respectfully traverse this assertion, and respectfully submit that claim 21 recites that the second transfer surface is separated from the first transfer surface by at least one of a plurality of imperfect transfer portions. For these reasons, Applicants respectfully assert that claim 21 defines a spatial relationship between the second transfer surface and the (other) transfer surface.

Claims 17-20 and 22-24 have also been amended to recite other features of the invention. Support for these changes can be found, inter alia, from page 18, line 7 through page 19, line 13 of the originally filed specification, as well as in figures 8-10. Thus, no new matter has been entered.

The present invention is directed to a plastic molding having a transfer surface that is an optical surface. During production of the plastic molding, liquid resin is injected into a mold. Deformation caused by solidification of the liquid resin is limited to a plurality of imperfect transfer portions. The imperfect transfer portions can be located apart from the transfer surface, such that the optical properties of the transfer surface are not adversely affected by the deformation. Advantages of the plastic molding so-formed include a

reduction in distortion of a specified optical surface in a relatively thin portion of the molding. Examples of other advantages are disclosed in the specification.

As discussed above, independent claim 17 was rejected under 35 U.S.C. § 102(b) as being anticipated by Hirofumi et al. and as being anticipated by Toshio et al., and under 35 U.S.C. § 102(e) as being anticipated by Kanematsu et al. Applicants respectfully traverse these rejections.

Hirofumi et al. shows a method and apparatus for injection molding without causing visible sink marks on desired surfaces of the molding. Figure 3 of Hirofumi et al. appears to show an injection molded part with multiple sink marks. However, Hirofumi et al. does not show a plastic molding having an optical surface. Thus, Hirofumi et al. does not show all of the features recited in independent claim 17.

Toshio et al. shows an optical reflection mirror and a method of production. In Toshio et al., a plastic material 7 is injected into a cavity 6. During solidification of the plastic material, a mirror surface 1 is formed opposite a rough surface, the sink of the product being limited to this rough surface. However, Toshio et al. does not show a plastic molding having a plurality of imperfect transfer portions. Thus, Toshio et al. does not show all of the features recited in independent claim 17.

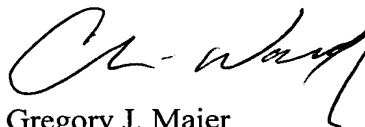
Kanematsu et al. shows a plastic molding method and apparatus. In Kanematsu et al., a material 20 is injected into a cavity 7 of a mold assembly 10. The mold assembly 10 includes a vent 18 for flow of air from the mold during injection of the material 20. The mold includes additional features to limit the extent of sinking of the material 20 during its solidification. However, Kanematsu et al. also does not show a plastic molding having a plurality of imperfect transfer portions. Thus, Kanematsu et al. does not show all of the features recited in independent claim 17.

Each of dependent claims 18-20 and 22-24 depends from independent claim 17, and is therefore also allowable for at least the same reasons as the independent claim.

Consequently, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER AND NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Attorney of Record
Christopher D. Ward
Registration No. 41,367



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17. (Amended) A plastic molding comprising:
at least one transfer surface, the transfer surface being an optical surface; and
[at least one imperfect transfer portion] a plurality of imperfect transfer portions each
having a concave or convex shape, wherein [the imperfect transfer portion] at least one of the
imperfect transfer portions is located in at least one prescribed portion of the plastic molding
so as to release a residual resin-pressure and an inward deformation of the plastic molding.

18. (Amended) The plastic molding according to claim 17, wherein [the imperfect
transfer portion] at least one of the plurality of imperfect transfer portions is formed in a
portion other than the transfer surface.

19. (Amended) The plastic molding according to claim 18, wherein [the imperfect
transfer portion] at least one of the plurality of imperfect transfer portions is formed in an
[extension-surface] adjacent surface of the transfer surface.

20. (Amended) The plastic molding according to claim 18, wherein [the imperfect
transfer portion] at least one of the plurality of imperfect transfer portions is formed so as to

have a contour [located along] disposed apart from an edge of the transfer surface.

21. (Amended) [The] A plastic molding [according to claim 20, further] comprising:
a transfer surface;

at least one imperfect transfer portion having a concave or convex shape, wherein the imperfect transfer portion is located in at least one prescribed portion of the plastic molding so as to release a residual resin-pressure and an inward deformation of the plastic molding, the imperfect transfer portion is formed in a portion other than the transfer surface, and the imperfect transfer portion is formed so as to have a contour disposed apart from an edge of the transfer surface; and

a second transfer surface, wherein the imperfect transfer portion is formed in a portion between the transfer surface and the second transfer surface so as to have a contour [located along both] disposed apart from edges of both the transfer surface and the second transfer surface.

22. (Amended) The plastic molding according to claim 17, wherein [the imperfect transfer portion] at least one of the plurality of imperfect transfer portions is formed in a [thin] portion having a thickness less than a maximum thickness of the plastic molding.

23. (Amended) The plastic molding according to claim 17, [further comprising a second imperfect transfer portion, wherein both of the imperfect transfer portion and the second imperfect transfer portion] wherein the plurality of imperfect transfer portions comprises two imperfect transfer portions, wherein both imperfect transfer portions are formed in a same surface other than the transfer surface.

24. (Amended) The plastic molding according to claim 17, wherein the plastic molding is an optical element [and wherein the transfer surface is an optical surface].